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Health, ageing and social differentials: A case study of Soweto, South Africa

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Abstract. This article analyses the relationship between health of people over sixty and a range of social differentials in a specific social context of a relatively deprived community in South Africa. Basic measures of social inequality as well as more sophisticated indicators of social relationships and access to social resources and how they are linked to peoples' perception of their own health are explored. The paper is based on a secondary analysis of data collected in a comprehensive social survey of Soweto conducted in 1997 by a team of researchers based mainly in the Department of Sociology at the University of the Witwatersrand, Johannesburg. The results present an interesting scenario, which, while reaffirming the already established connection between social differentials, social ties and health, also sheds light on a different social context and specific relationships with regard to health.

Keywords: ageing, developing countries, health, social differentials, South Africa

Introduction

It is widely accepted that peoples' health is a reflection of the interaction between genetic, biological, psychological and social factors (Gilbert et al., 2002). This is particularly apparent among older people due to the influence of social contexts throughout the life-course (Ferraro & Farmer, 1996; Pampel, 1998; Silverman et al. 2000; Ajrouch et al. 2001). It is the intention of this article to explore the social factors likely to be linked to health among the older population in a relatively deprived community in South Africa.

The differential distribution of health between and within communities, accompanied by attempts to explore the social factors associated with it, have been the focus of much research (Black,1991; Eames, Ben Shlomo & Marmot, 1993; Feinstein, 1993; Kaplan 1996; Wilkinson, 1996; Marmot, 1996; Macintyre, 1997; Glbert & Walker, 2000; Marmot, 2000; Cattell, 2001). Class or socio-economic inequalities as an explanatory factor feature most prominently in these studies (Scambler & Higgs, 2001). This is not surprising due to the overwhelming amount of data in support of the relationship between

health and socio-economic inequalities. Based on an analysis of eight reports in the International Journal of Epidemiology from a range of countries—Australia, Denmark, Finland, Italy, The Netherlands, Scotland and Sweden—Blane (2001:292), aptly concludes that they demonstrate "once again the ubiquity of socio-economic inequalities in health, at least in the rich countries of the world."

It is generally agreed that social class differentials for most health measures are wider in middle and older age, and that there are social class differences in the rate of health deterioration over time (Miller et al. 1997; Pampel, 1998, Blaxter, 2000a). Yet, the research on socio-economic status and health in later life is still limited, partially due to difficulties in measurement of social status in the latter years of life. The meaning of social class in older age, post-retirement, may be different. It is not only the current status but also earlier social and economic conditions that have an effect on health of elderly people (Dahl and Birkelund, 1997).

An examination of the literature confirms that the majority of the studies on this theme originate in the developed world. Although comparisons between rich and poor countries have been made (Nettleton, 1995; Wilkinson, 1996; Curtis & Taket, 1996), there is a dearth of research exploring social inequalities within poor communities, particularly in developing countries (Gwatkin, 2001; Gilbert, 2001). The research conducted in poor communities tends to focus on issues of poverty and exclusion. The discussion over whether health in poor communities can be explained wholly by the socio-economic characteristics of its population, or whether features connected with context can play an independent role (Sloggett & Joshi 1994; Macintyre, Mciver & Sooman, 1993; Macintyre, 2000; Subramanian, Kawachi & Kennedy, 2001), are paralleled by wider questions in the poverty literature concerning the impact of social exclusion and concentrated poverty on life chances (Cattell, 2001). Furthermore, there is evidence to suggest that not all communities with high concentration of poverty, and not all individuals within such communities, experience negative health effects to the same extent (Schulz et al, 2000: Clausen, Sandberg, Ingstad & Hjortdahl, 2000), nor is there evidence to indicate differences in the way in which individuals in developing countries perceive and report health (Zimmer & Amornsirisomboon, 2001).

Attempts to further understand the complex relationship between health and social characteristics of poor communities invoke the concept of neighbourhood (McCulloch & Joshi, 2001) as a potential explanatory context and link it to the debate about its role in the formation of social capital (Cattell, 2001). It is widely accepted that both social exclusion and concentrated poverty imply some form of impoverished social networks. This is often evident in older population groups (Morgan, 1988). However, as argued by Cattell

& Evans (1999), in specific circumstances supportive social networks develop and flourish (Kim et al. 2000; Ajrouch et al. 2001). This is corroborated by evidence from a comprehensive survey of Soweto, South Africa—a township created by the apartheid regime to exclusively accommodate African residents (Morris, 1999). This theme will be further developed below, but is mentioned here in order to highlight this additional dimension in the complexity of the interface between poverty and its social context.

Although social capital has been put forward as one of the mechanisms in the relationship between poverty and ill health, it is a strongly contested concept and consequently, variously defined in the sociological and development literature (Blaxter, 2000b; Gilbert & Walker, 2001). Putnam (1996), one of the leading writers in the field, defines social capital as "features of social life, networks, norms and trust, that enable participants to act together more effectively to pursue shared objectives" (Putnam, 1996:114). Wilkinson (1999) uses the notion of "social cohesion" to capture his understanding of social capital. Budlender & Dube (1997) argue that the various different understandings and definitions advanced in the literature have resulted in a fuzziness in the use of the concept which renders it theoretically problematic yet allows for its adaptability to specific issues, circumstances and environments.

The empirical evidence linking social capital to health (Kawachi & Berkman, 2000; Hawe & Shiell, 2000) has also been subjected to criticism. According to Cattell (2001), these studies have paid insufficient attention to the complexity of the concept. She further argues that the main difficulty with the analysis is that problems concerned with place or the influence of context are not fully exposed. As stated by Cattell and Evans, (1999) it is not necessarily the case that all deprived areas suffer from a lack of social cohesion or a depleted store of social capital.

The problematic nature of the use of "relative deprivation" as an explanatory tool, has also been raised and an argument made that strong perceptions of inequality could co-exist with the mutual aid and solidarity evident in traditional working class communities (Frankenburg, 1966). Cattell (2001) maintains that an additional problem with work which seeks to link social capital to health is that it is not clear which kinds of networks—strong or weak ties, homogeneous or heterogeneous contacts—are most effective in the creation of social capital and protecting health. This might also explain why some studies failed to establish the effects of social capital on health (Veenstra, 2000) in addition to the problems associated with levels of analysis and measurements (Lomas, 1998). Yet, the consistent centrality of social integration and access to social resources in the concept of social capital suggest the need for further examination of their association with health beyond the traditional poverty and social exclusion concepts. These issues are of particular

relevance to the analysis of the association of diminished social resources, cohesion and power of elderly populations with their health (Ferraro & Farmer, 1996; Ajrouch et al. 2001).

In this article, an attempt will be made to use some of the conceptual elements highlighted above in an analysis that focuses on the elderly population in a relatively deprived community in South Africa. It aims to explain the differential self-perception of health in relation to a range of social features, emphasising its political and social context, and to discuss the implications of the findings for future research and intervention for the elderly in poor communities.

Methodology

The article is based on a secondary analysis of data collected in a comprehensive social survey of Soweto conducted in 1997 by a team of researchers based mainly in the Department of Sociology at the University of the Witwatersrand, Johannesburg.[1] The study was initiated by the Mayor of Soweto (a past student of the department of Sociology), who was struck by the paucity of hard data on Soweto and was keen that this be rectified. The aim of the survey was to provide a comprehensive profile of Soweto through a household survey. It was hoped that the information gathered in this survey would provide an insight into the economic, social and health profile of Soweto. Such a survey could facilitate planning, implementation, monitoring and evaluation of development projects and their administration by the local and provincial authorities.

Background to Soweto, sampling method and the study population

The unique features of Soweto are described in the report of the survey by Morris (1999:1): "About 15 km south west of Johannesburg's central business district lies Soweto, probably South Africa's most well-known historically African township. Soweto covers about 78 square kilometres and is composed of 29 different townships. It has always been viewed as the heart of black South African urban life . . . Soweto is also the largest African township in the country supplying the labour needs of Johannesburg, the biggest and most powerful city in South Africa."

Historically, the size of Soweto's population has been an issue, which has evoked a great deal of controversy and conjecture. And population estimates for Soweto have varied dramatically. According to the survey (Morris, 1999), the total population of Soweto is 1 029 485.

Soweto's housing market is deeply differentiated and the differences are easy to identify. They are to be found in the forms and security of tenure, levels of services and quality of housing. Due to its complicated history and housing policy there is a sociological significance in the type of settlement/housing the population resides in. For this reason the study population has been chosen by means of a stratified sample by the type of settlement/housing domain. The sample was stratified into six different types of settlements (housing domains):

- **Council Housing**—these are houses built by the council for the purpose of population resettlement at different periods: pre-apartheid, forced removals and squatter relocation.[2]
- **Private sector housing**—these are houses built privately by their owners (mostly post-apartheid).
- **Informal settlements**—dwellings put-up informally.
- **Backyard shacks/formal backyard rooms**—found mostly in the back-yards of council houses.
- **Hostels**—these were originally built for workers from the rural areas who came to work in the city.
- **Site-and-service schemes**—these are post apartheid schemes where the council provides the site and basic services, but the dwellings are informal structures put up by the owners.

In case of the formal township, site-and-service and backyard tenant strata, the sampling unit was the actual stand. In case of the squatter/informal settlement stratum, where stands were informally demarcated, they were treated as the sampling unit. Soweto's hostels are quite uniform: they comprise dormitories, which have been converted into so-called "bungalows," each with eight rooms with each room accommodating two residents. Each room was treated as the sampling unit. The coverage of the sample was extensive. As far as reaching the sampled households was concerned, 24 per-cent of households, which were selected were not interviewed. The most common reason why households were not interviewed was that the household members were absent during the evening. Interviewers used notifications and returned three times. If, after three visits towards the end of the evening, the house or shack was still unoccupied, then the interviewers simply replaced the chosen unit with the stand or shack on the immediate right hand side of the selected unit. The total size of the sample was 2947 households (Morris, 1999).[3] The interviews were conducted with an adult in the house who was in a position to provide information about the household and its members (self-identified "head of household"). Of the total sample, 626 participants were 60 years of age or older. The characteristics of the total sample are presented together with reference to the specific situation of the elderly population.

The majority of the population (57%) lives in council houses, which were built by the City Council of Johannesburg from 1905 in order to accommodate Africans.[4] A substantial proportion (20%) lives in one-roomed backyard structures; roughly half of these are 'shacks' and half are solid brick and mortar dwellings. The large number of backyard dwellings is testimony to the enormous housing shortage, which developed during the time of apartheid. Many of the residents of the informal settlements (6%), hostels (4%) and site-and-service schemes (4%) are more recent arrivals from the countryside. Residents living in homes in the private sector domain make up a modest 9 percent of Soweto's population indicating the middle class in Soweto is still fairly small. Compared to the total population, a much higher proportion of the elderly live in council houses (77%) reflecting their long stay in Soweto, while fewer live in backyard structures (2%).

The educational level reflects the devastating impact of apartheid education policies on what is probably the most educated African township population in South Africa—10.5 percent of adults had no formal schooling and 16 percent had a maximum of grade 4. The impact of apartheid is much more pronounced for the elderly with 26 percent with no formal education.

The income profile of Soweto illustrates two key features. Firstly it shows that a large part of Soweto's population is poor and secondly that it is characterised by significant differentiation. Of particular significance to this paper are the substantial differences found between the different types of settlements. Not surprisingly, the poorest section of Soweto's population are the residents of the informal settlements and hostels where nearly 80 percent have a total household income of less than R1500[5] per month. The situation of the site-and-service' households is not much better—68.1 percent earn below R1500 a month. Even the long-established Soweto residents in council homes have low monthly incomes—54.6 percent have a monthly income below R1500. The private housing sector is occupied by a different class grouping—less than 16 percent has a household income of less than R1500 per month while nearly 20 percent has a monthly income higher than R3000.[6] Needless to say that the physical conditions such as space, availability of a separate kitchen and bathroom and type of toilet available, vary according to type of settlement (Morris, 1999). It is thus easy to see that the type of settlement can be considered a dimension of social stratification, or an indicator of socio-economic inequalities in the community. The income level of the elderly is much lower than that of the total population, with very low variation: 95 percent had an income of less than R1500, and 89 percent had an income of R750 or less a month. Yet, similar socio-economic stratification by settlement type was observed for this population. These data highlight the higher socio-economic vulnerability of the elderly *within* this relatively deprived community.

Analysis of data & discussion

Since this paper is concerned with the older population, only the data collected from respondents aged sixty or older were used for the purpose of the analysis presented here.[7] A note should be made that as the relationship between health and social differentials was not the main aim of the survey, regrettably not all relevant variables were included, and some had to be modified to fit in with the focus of this article. These are detailed throughout the analyses. Being based on a secondary analysis the has its limitations, nevertheless, it was felt that the material produced is of value to the understanding of the specific context of the older population in Soweto and to the general debate on these issues. Self-Assessed Health, as the measure of perceived health status, was cross tabulated with a range of relevant variables relating to a) socio-economic status, b) social networks, c) perception of quality of living environment, d) access to social resources.

The measurement of Health was based on the answers given to the question: "How would you describe your health over the last month?" the options being that of: Very good, Fairly good, Not so bad, Not so good, Bad and Very bad. These were further grouped into a modified three-level scale of self-assessed health: Good, Fair and Bad. Similar use of self-assessed or self-reported health is common in studies of this kind (Schulz et al, 2000; Veenstra, 2000) as a valid measure because . . . "a large number of empirical studies have demonstrated that a person's own appraisal of her/his general health is a powerful predictor of future morbidity and mortality . . ." (Eriksson, Unden, & Elofsson, 2001:326, Hertzman et al., 2001). It has been used in surveys in developing countries as well (Clausen et al., 2000; Zimmer & Amornsirisomboon, 2001).

Before turning to the analyses, it is important to note that age may be a confounder even within this older population, a determinant of self-assessed health as well as of some of the social differentials examined. However, no age differences in self-assessed health were found: the proportions of those reporting bad health among respondents under age 75 (46%) were lower than among those 75 years of age or older, but the variation was not statistically significant (53%, $p = 0.213$). Therefore, age was not controlled for in the following univariate associations, However, it was for the multivariate models.

Health and socio-economic factors

As mentioned earlier the type of settlement is a useful indicator of social stratification. There are consistent differences between respondents in these domains. Those in the private sector are of higher education, higher income and most of them are employed. Following in the hierarchy are respondents

Table 1. Self-Assessed Health and Settlement Type (%)

	Settlement type					
	Council house ($N = 481$)	Private sector ($N = 35$)	Backyard structure Site & service ($N = 42$)	Informal settlement ($N = 42$)	Hostel ($N = 25$)	Total ($N = 625$)
Self-assessed health status						
Good	24.5	31.4	31.0	26.2	36.0	25.9
Fair	27.7	37.1	16.7	14.3	32.0	26.7
Bad	47.8	31.4	52.4	59.5	32.0	47.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

$p = 0.123$.

in council houses, backyard shacks, site-and-service, informal settlements and hostels. However, in addition to these quantitative differences between the housing domains, there are substantial qualitative differences shaped by the history of their development and their social context (Morris, 1999). It was thus of some interest to examine the relationship between health and the type of settlement among the elderly (Table 1). The number of residents in backyard structure was very small ($N = 10$) and it was combined with site & service category.

The levels of bad health were highest among informal settlement dwellers, followed by council house and backyard structure and site-and-service dwellers, and were the lowest in the private sector and hostels. These differences, even though they do not reach statistical significance, illustrate some of the points raised earlier with regard to the social inequalities found between the types of settlement. The relative low percentage of hostel dwellers who report bad health despite their being badly disadvantaged can be explained by the fact that most of them come from the rural areas to work in Johannesburg and they leave the hostels to go back to their homes when diseased or disabled and no longer able to work and earn a living—this is a common practice since there is nobody in the city who can support them, while in the rural areas, they would be supported by family members who remained there.[8]

The link between health and socio-demographic characteristics is well documented (Veenstra, 2000; Schulz, et al, 2000), and is further confirmed by the data for the elderly in this survey. Because of the majority of the elderly had very low income, a cut-off level of R750 was selected. Fifty one percent of the elderly with monthly income of R750 or less report bad

self-assessed health compared to 30.3% among those with higher income ($p < 0.01$). Similarly, the level of bad health (51.4%) was higher among those with very low education (none or up to standard 1) or medium level (50.7%) compared to 42.1 percent among those with standard 6 or higher, but the association was not statistically significant. Women report higher levels of bad health (51.4%) as opposed to only 42.1 percent by men ($p = 0.06$). Although gender is not the main focus of this paper, it is of relevance to highlight the relationship found here since it is consistent with findings from other countries (Doyal, 2000). In particular, it can provide further insight to the understanding of women and health in South Africa in light of the devastating effects of HIV/AIDS epidemic on women's lives (Walker & Gilbert, 2001). As in other studies (Schulz et al, 2000; Gilbert &Walker, 2001), a more in-depth analysis reveals that in this case gender is also linked to lower levels of education and income—placing women in disadvantaged social positions and rendering them more vulnerable to disease.

Health and family/social networks

The presence of social support in the form of social networks of friends and family as a valuable contributor to good health and well-being is widely accepted. Many studies focus on the extent of the networks and the nature of the social integration. Studies have indicated that urban neighbourhoods characterised by a high level of residential stability are more likely to have a strong sense of community and that this is heightened when the neighbourhood's composition is fairly homogenous (Gans, 1967 cited in Morris, 1999). Further, in situations where residents have little disposable income and often require assistance from neighbours, social ties are also likely to be strong (Hollnsteiner-Racelis, 1988 cited in Morris, 1999). An irony of apartheid's urban policy is that the pass laws restricting people's movements combined with the lack of accommodation ensured that neighbourhoods were fairly homogenous, class differentiation was not substantial and household incomes were low, virtually ensuring a high level of mutual assistance (Morris, 1999). People were also united by the fact that they were all victims of the racist structuring of the society—thus conditions were present for a strong sense of community developing in African townships like Soweto. The findings of the survey portray a community with a strong sense of belonging and an extensive network of friends and relatives (Morris, 1999). What is perhaps even more indicative of strong neighbourly ties and a sense of community is the extent of neighbourly assistance. Sixty percent of all the respondents and 40 percent of the elderly said that they had received help from or given help to an immediate neighbour in the month proceeding the survey. As mentioned,

Table 2. Self-Assessed Health and Visits with Friends (%)

	Visits friends		
	None ($N = 271$)	Yes ($N = 347$)	Total ($N = 618$)
Self-assessed health status			
Good	22.1	28.2	25.6
Fair	23.6	29.7	27.0
Bad	54.2	42.1	47.4*
Total	100.0	100.0	100.0

*$p = 0.011$.

there is no doubt that these characteristics play an important role in people's health.

An examination of the relationship between health and social networks in Soweto reveals a complex scenario. In the context of this generally connected community, it was found that the number of friends and relatives of the elderly did not make a difference as far as health was concerned on the individual basis, and no association of frequency of contact with family members was found. However, respondents who did not have any contact with friends (did not visit anybody in the last month prior to the survey) reported significantly more "bad health" (54.2%) than those who did visit friends (42.1%, Table 2). It can be said that these findings point to the negative association between lack of social contacts and health and thus are consistent with similar trends reported elsewhere (Berkman & Glass, 2001).

Since the nature of social contacts is significant to health, it seemed appropriate to examine the relationship between health and the structure of the household. Although, to the best of our knowledge, the literature on this topic is fairly limited and focuses mainly on the influence of family structure on health among patients with specific conditions (Thompson, Auslander, & White, 2001), there is evidence to suggest links between family structure, health and well-being (Williams et al., 2000; Soskolne, 2001).

In this elderly population, the respondents from three generations tend to report the highest level of bad health (53.8%), followed by single mothers (50.0%) and unmarried respondents (48.6%), compared to 39 percent among those living in nuclear family households ($p = 0.238$). This tendency is quite expected since the three-generation households are more likely to have older people within them or might have added the older generation due to bad health. Of relevance is that single mother households report high levels of bad health. These findings are similar to those found by Schulz et al, (2000) and might

be related to the general vulnerability of single parents households and to the added disadvantage of women as mentioned earlier (Schulz et al, 2000; Walker & Gilbert, 2001). The high level of bad health reported by the unmarried older adults corroborates the well-established association of marital status to health, due to the lower levels of social ties and support (Berkman & Glass, 2000).

Health and perception of quality of living environment

The definition of health, in particular when different view points have been considered, is a contested issue (Pierret, 1993; Radley, 1994)—there is no single definition that fully captures the meaning of "health" and, as has been demonstrated in various studies, "health" means different things to different people (Blaxter, 1995; Curtis, & Taket, 1996). This is particularly manifested in studies of older population groups with chronic conditions (Silverman et al., 2000).

Of particular relevance to this paper—in a social context of general deprivation—is the question of what can contribute towards "good health" and what can make it worse. The discussion featuring mostly in the literature centers on issues related to social integration, social cohesion and social capital (Hawe & Shiell, 2000; Blaxter, 2000; Berkman & Glass, 2000; Kawachi & Berkman, 2000; Hyyppa & Maki, 2001; Hyyppa & Maki, 2001). These concepts are difficult to apply and somewhat inappropriate in the context of a community such as Soweto, not only due to their complexity but also since they are informed and developed mainly by sources originating in Western-developed countries. For this reason, this paper does not seek to analyse the relationship between health and social capital, but rather search for possible variables which might shed some light towards a possible answer to the question posed earlier, namely, "what additional factors in this social context, are associated with health?". Note should be taken that since this is a secondary analysis, it is based on variables which have been included in the general survey and that bear relevance to the current discussion.

A common stereotype is that African townships are barren areas and that if residents had the means they would leave these areas. The section of the Soweto survey, which examined the quality of life and social relations, illustrated that this depiction of township life is not accurate. As Manqcu (cited in Morris, 1999) has commented, "there is indeed a tradition of making positive urban spaces in the townships." The survey showed that most Soweto households were well integrated into their neighbourhoods. Most households felt that their neighbourhood was a pleasant place to live and would recommend it to an acquaintance (Morris, 1999).

More specifically, the respondents were asked a series of questions related to their perception with regard to the quality of their social-environment. Crime has been linked to collective well-being in the literature (Kawachi et al., 1999). For this reason, the exposure to it was an additional dimension explored in this context. Since it is our contention that these perceptions, indicative of the social context in which the respondents live, are potentially important to well-being and health, an attempt was made to analyse the relationship between health and these perceptions. A new variable was computed, for this purpose titled "perception of quality of living environment." It consists of two options: a positive one (good) based on three segments: their perception that Soweto is a pleasant place to live in, their willingness to recommend it to friends and family and lack of exposure to crime, and a negative one when the answer to the first two is negative and/or they have been exposed to crime (not good) (Table 3).[9]

Health is definitely associated with a good perception about the living environment. More of the respondents who had a positive compared to those with negative perception of their living environment reported good health (37.6% vs. 21.2%). It seems that the association of the nature of the social environment with health (Ellaway & Macintyre, 2001), and with healthy ageing, in particular (Wilson, 2000; Shenk & Sokolovsky, 2001) as illustrated in studies elsewhere has been supported by the data analysed here. This variable of "perception of quality of living environment," and its relationship to health, can be conceptually linked to the complex understanding of "social capital" since it represents peoples' personal experiences as well as the potential availability of resources within the community. However, it is difficult to do so within the constrains of this paper.

Table 3. Self-Assessed Health and Perception of Quality of Living Environment (%)

	Perception of Quality of Living Environment[a]		
	Not good ($N = 444$)	Good ($N = 181$)	Total ($N = 625$)
Self-assessed health status			
Good	21.2	37.6	25.9
Fair	27.5	24.9	26.7
Bad	51.4	37.6	47.4*
Total	100.0	100.0	100.0

[a]Composed of responses to questions on perception of the community as pleasant (yes/no), will recommend others to live here (yes/no), exposure to crime (no/yes).
*$p < 0.001$.

Health and access to social resources

As already mentioned, "social capital" can be interpreted in different ways and involves multi-level concepts. Although it is perceived as a social characteristic, its components often have to be measured at an individual level such as social networks, participation and association and measures of civic engagement and citizen satisfaction (Blaxter, 2000). The relationship between various levels of analysis is currently being explored and debated in the literature (Blaxter, 2000; Veenstra, 2000). What is of relevance to this paper is Blaxter's assertion that "mirrors of the quality of the social environment, such as community-level data on crime or violence, as well as individual-level data on personal experience, are being shown to be associated not only with deprivation but also with low social capital, poorer self-assessed health and higher mortality" (Blaxter, 2000:1140).

As mentioned earlier, due to the complexity and problematic nature of the concept of social capital, it is not the intention of this paper to focus on it and its relation to health, but rather to examine what variables within those included in the survey might further our understanding of the relationship between health and social characteristics of the older population group. Whether some of these variables can be interpreted in this specific social context as measures of social capital is open for debate, and requires further research.

In order to simplify the analysis we have constructed a compound variable, which we would like to call "access to social resources." It includes use of a library, a bookshop, and knowledge of the Bill of Rights and of Community Policing.[10] A combination of these characteristics is a gauge of access to social resources on three levels labelled as "no access to social resources," "limited/low access to social resources" and "good access to social resources." Table 4 summarises the relationship between this variable of "access to social resources" and self-assessed health.

Table 4. Self-Assessed Health and Access to Social Resources (%)

	Access to social resources			
	No access ($N = 235$)	Low access ($N = 290$)	High access ($N = 100$)	Total ($N = 625$)
Self-assessed health status				
Good	21.3	27.6	32.0	25.9
Fair	24.7	25.2	36.0	26.7
Bad	54.0	47.2	32.0	47.4*
Total	100.0	100.0	100.0	100.0

*$p < 0.01$.

The results clearly show a significant relationship between access to social resources and health. Only 21.3 percent among those who had no access reported good health compared to 32 percent among those with high access, while 54 percent and 32 percent reported bad health (respectively). This means that older people living in Soweto who used a library and a bookshop and knew about the Bill of Rights and about Community Policing also felt healthier than those who did not. Note should be taken that the items above were chosen because they gave a good indication of awareness and community participation. These findings once again confirm the general relationship between what can be conceptualised as social capital and health, but in this case do so in the specific context of Soweto and a range of different characteristics unique to this setting. Relying on the analysis produced by Cattell (2001), one can argue that social capital in this context, as a concept which bridges structural and cultural approaches to poverty, can be a useful tool in understanding the relationship between poverty, place of residence and health and well being. However, more specific and focused research is needed in order to substantiate this argument.

Multivariate analysis

To further explore the independent associations of these various economic and social variables, particularly our two indicators of social capital ("perception of quality of living environment" and "access to social resources") with self-assessed health, we conducted several logistic regression models. The dependant variable was dichotomized into "good/fair health" (0) and "bad health (1). Because "access to resources" was associated with income and education it could mediate their association with health. Therefore, the analysis was conducted in two stages: First, the socio-economic variables of education and income were entered, with age and gender as control variables. Second, the additional social variables were added (see Table 5).

The findings suggest that, of the individual's socio-economic status, income level but not education was significantly associated with health (after controlling for age and gender). However, this does not change in the second model, suggesting that none of the socio-economic variables were mediated by the additional social variables. In addition to income, respondents who had social ties with friends, who perceived their living environment as "not good" and those who have low or no access to social resources are likely to report higher levels of bad health. Even though the magnitude of these latter associations are modest (odds ratios between 1.5 to 2.0), they indicate the additional contribution of concepts describing the social environment as significantly related to self-assessed health.

Table 5. Multivariate Logistic Regression on Self-Assessed Health[a] ($N = 578$)

	Stage 1			Stage 2		
	OR	95% CI	*p*	OR	95% CI	*p*
Background						
Age[b]	1.00	0.98–1.03	0.537	1.00	0.98–1.03	0.776
Gender						
Male	1.00	—		1.00	—	
Female	1.27	0.90–1.77	0.163	1.25	0.88–1.77	0.198
Education			0.486			0.771
Elementary or higher	1.00	—		1.00	—	
Less than elementary	1.26	0.84–1.87	0.258	1.16	0.78–1.75	0.483
None	1.21	0.80–1.83	0.371	1.12	0.74–1.72	0.618
Income						
> R750	1.00	—		1.00	—	
≤ R750	2.12	1.20–3.78	0.010	2.00	1.10–3.64	0.023
Visits with friends						
None				1.00	—	
One or more visits				1.48	1.05–2.09	0.025
Perception of quality of living						
Good				1.00	—	
Not good				1.64	1.13–2.39	0.010
Access to social resources						0.050
High				1.00	—	
Low				1.62	0.97–2.69	0.065
None				1.94	1.14–3.31	0.014

[a]Reference category = good/fair health.
[b]Continuous variable.

Discussion and conclusion

This article set out to analyse the relationship between health of people over sixty and a range of social differentials in a specific social context of a relatively deprived community in South Africa. An attempt was made to explore basic measures of social inequality as well as more sophisticated indicators of social relationships and access to social resources and how they are linked to peoples' perception of their own health. Though the cross-sectional design of the study does not allow any inference of causality, and the results should not be generalised to other communities in South Africa, they add data to the neglected field of research on factors associated with health among non-Western elderly populations. The results present an interesting scenario,

which—while reaffirming the already established connection between social differentials, social ties and health—also sheds light on a different social context and specific relationships with regard to health. They may also give an indication of the way people try to cope with the psycho-social stressors emanating from their specific conditions, expressed, for example, in the high rate of family and neighbourhood assistance (Morris, 1999). Of significance is the relationship found between a range of variables measuring social inequality such as "access to social resources" beyond the significant association with income, and controlling for education. Even though "access to social resources" is a product of education, it had an additional value that associated it with health. This once again raises the question of the relative role of the macro factors responsible for the social inequalities, and the more micro factors such as social relations and "access to social resources" in people's health. Also, which of these are to be tackled first in attempts at interventions to promote better health? And how should they vary by age group?

With respect to the traditional socio-economic measures of education and income, it is important to note that their variation is small among these older adults compared to the total population of Soweto. This may partially explain why education was statistically insignificant once other variables were controlled for, while income level showed that the very deprived elderly reported significantly worse health. Similar stronger association of self-assessed health with income than with education was reported among older adults in Thailand (Zimmer & Amornsirisomboon, 2001). These findings suggest that while education is a significant factor in self-reported health among the elderly in Western countries (e.g., Benyamini et al., 2000), income may be a more important among elderly populations in developing countries.

It has been established that "adverse social, economic and physical environments inhibit the production of health in populations" (Birch, 2001:295). For this reason, it would be of great importance to include these same social, economic and physical environments as part of research studies aimed at identifying solutions to inequalities in health and health poverty. Following the claim made by Birch (2001:296) that "significant contributions to the understanding of the nature of health problems and identifying effective solutions to those problems have been made by studying the problems in the context in which they occur," this paper put emphasis on the unique conditions and context of the community studied - thus, hopefully, adding "social value" to the findings and their implications.

Bebbington (1999) demonstrates that it is the interaction between natural capital, human capital, cultural capital, social capital and produced capital which enhances human well being and development. These different forms of

capital are understood as both input needed (resources) and output (income for example) generated. According to Bebbington (1999) and others "social capital" then can inhere or be absent in individuals, households, communities or societies yet can also be built and generated through intervention. Bebbington (1999) and Hawe and Shiell (2000) then take account of firstly, the distinction between the sources and consequences of social capital, secondly, its positive and negative effects and thirdly, its multi-dimensional nature. These frameworks (although developed in relation to other social problems) might be applicable to understanding the differential distribution of health among the elderly in Soweto. It is arguable that people living in poor circumstances have limited capital be it natural, produced, human, social or cultural and the deficit of capital at all levels thus surely increases their vulnerability. Yet the existence of familial, organisational and community networks and resources, may also provide an important source of social, and other forms of capital from which to build (Kim et al, 2000). Our findings confirm this conclusion and show that even within a relatively deprived elderly group social ties and access to social resources are significant correlates of health *beyond* that of economic capital.

There is a substantial body of literature dealing with successful and healthy ageing attempting to understand and explain the social factors most likely to be associated with it (Bryant et al., 2001; Shenk & Sokolovsky, 2001; Collings, 2001). These studies identified social factors other than socio-economic, such as the ability to successfully manage declining health and maintain willingness to transmit their knowledge to their juniors among Inuit elderly in Canada (Collings, 2001), or place attachment and place identity as important contributions to health among African-Americans (Taylor Perkins, 2001). Our findings of the importance to health of the "perception of the quality of the living environment" and "access to social resources" may be related to these concepts and may also highlight additional social factors that have the potential to contribute towards healthier ageing.

The current findings confirm previous data on the existence of social differentials in subjective health assessment of the elderly in non-Western countries (Zimmer & Amornsirisomboon, 2001). Yet, they highlight the specific context of these differentials and the need for further research to gain a better understanding across diverse social environments.

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Notes

1. Leah Gilbert was a member of the team of researchers who conducted the survey.
2. Originally these were separate categories which have been combined to one based on the survey's initials results.
3. For further explanation of the sampling method see Appendix I in Morris (1999).
4. During the apartheid regime, according to the "Population Act, 1950," people were classified into four population groups (racial groups), namely: White, Indian, Coloured and African (Black).
5. At the time of writing this article, the exchange rate was about R14 to 1Paund Sterling.
6. Note should be taken that these amounts are much lower than those earned by the White population in South Africa.
7. The rest of the data were analysed in a different paper.
8. Although there is no hard data to support this explanation due to a general lack of availability of central information in South Africa, it is widely known among health workers that this is the case.
9. This was based on their answers to the questions whether Soweto is a pleasant place to live, whether they would recommend it to family and friends and whether they or their family members have been exposed to crime.
10. In the social context of Soweto at the time of the survey, whether people used a library or a bookshop and in particular whether they knew about the widely publicised "Bill of Rights" and the newly established police forums to combat crime in the community, could be considered as good indicators of people's ability to access social resources.

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